INCREASED DIFFERENTIATION IN HIGHER EDUCATION: THE CASE OF THE BRICS

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SOME FINDINGS FROM A STUDY OF HIGHER EDUCATION IN THE BRIC COUNTRIES

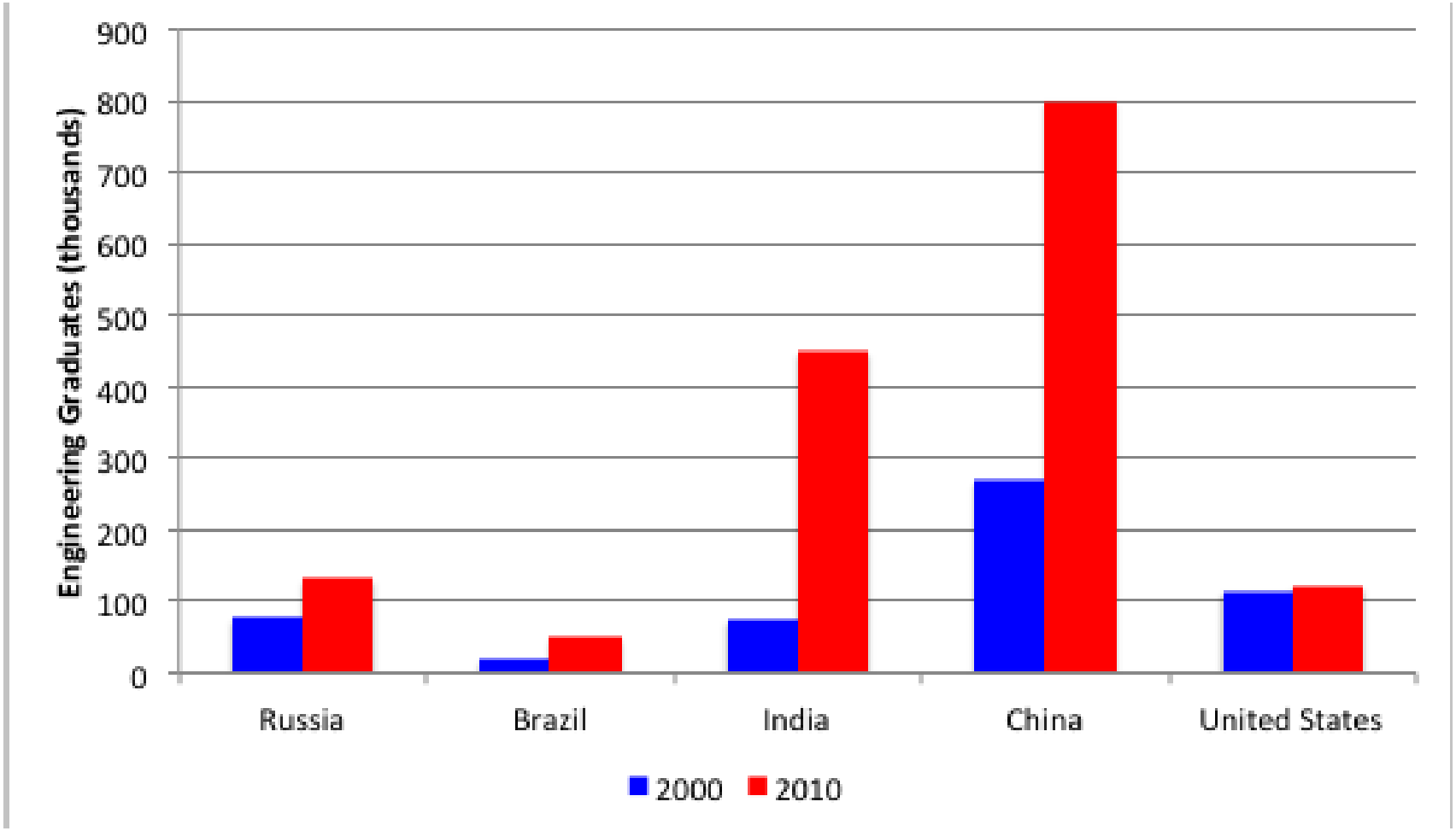
It is well known that higher education has long been differentiated in almost every country in the world.

First and second tier and even third tier universities exist and students and faculty are aware of these difference.

For many years, this differentiation existed but funding was distributed similarly over time—in other words, spending differences per student existed, but did not change appreciably over time.

In the present historical context, this appears to be changing, even as systems "privatize" and in many countries average spending per student may even be declining

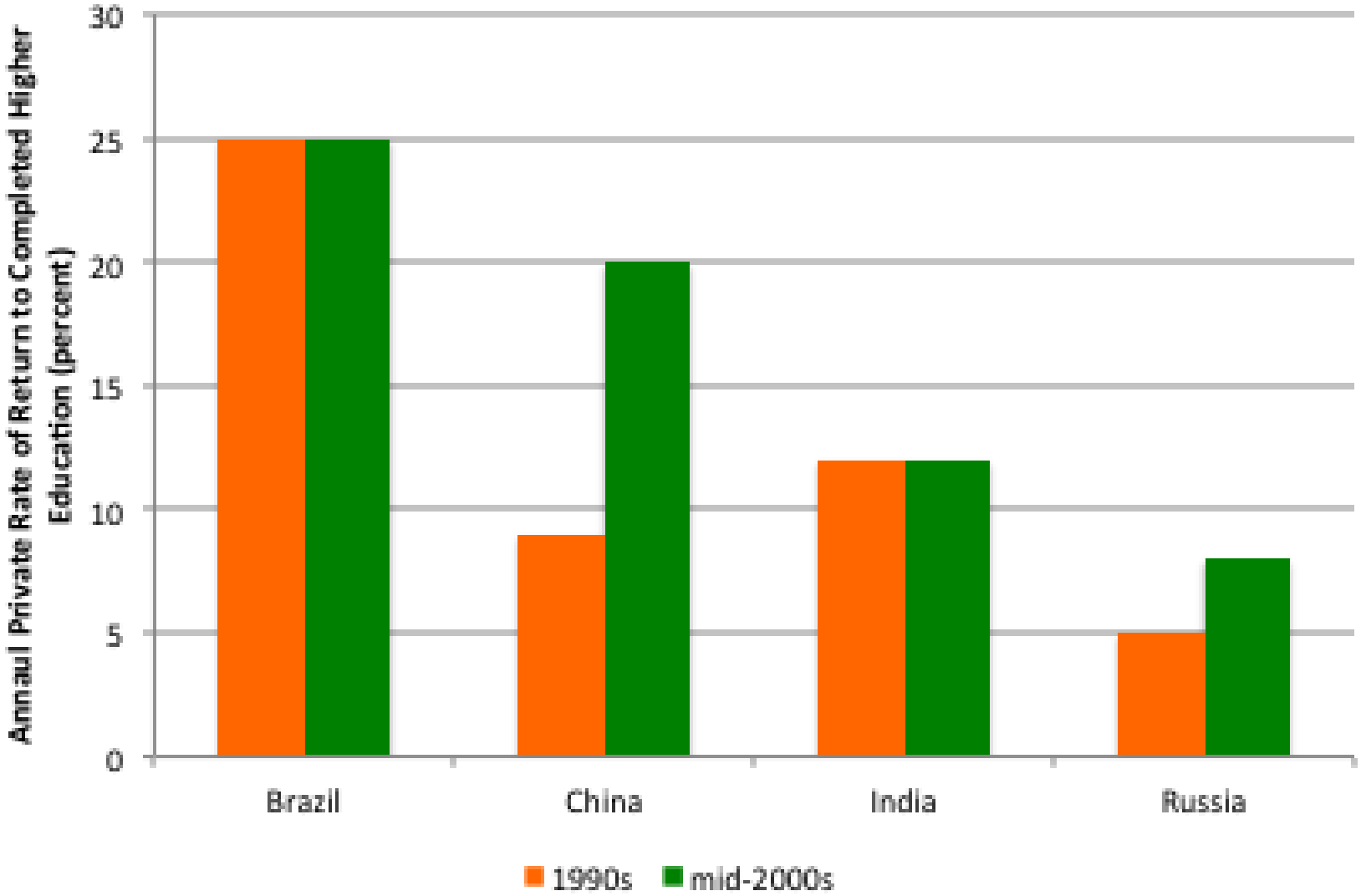
BRICS: FIRST DEGREE ENGINEERING GRADUATES, 2000 & 2010



FINDING I: PRIVATE PAYOFFS TO INVESTING IN UNIVERSITY ARE HIGH, ESPECIALLY RORS TO ENGINEERING EDUCATION & WOMEN

1. **The private payoff to higher education in Brazil, China, and India remains high despite rapid increases in the number of graduates. The private rates of return to engineering education are much higher than the university average.**
2. **Thus, the demand for higher education should remain high, and that the supply of university graduates should continue to grow quickly, including the supply of engineering and computer science graduates.**
3. **The case of Russia is different because of the already high percentage of the youth cohort in higher education (87 percent) and the declining overall (and youth) population.**
4. **The structure of RORs also suggests a trend in all countries except India away from post-secondary non-university degree studies to university level studies, where payoffs are higher.**

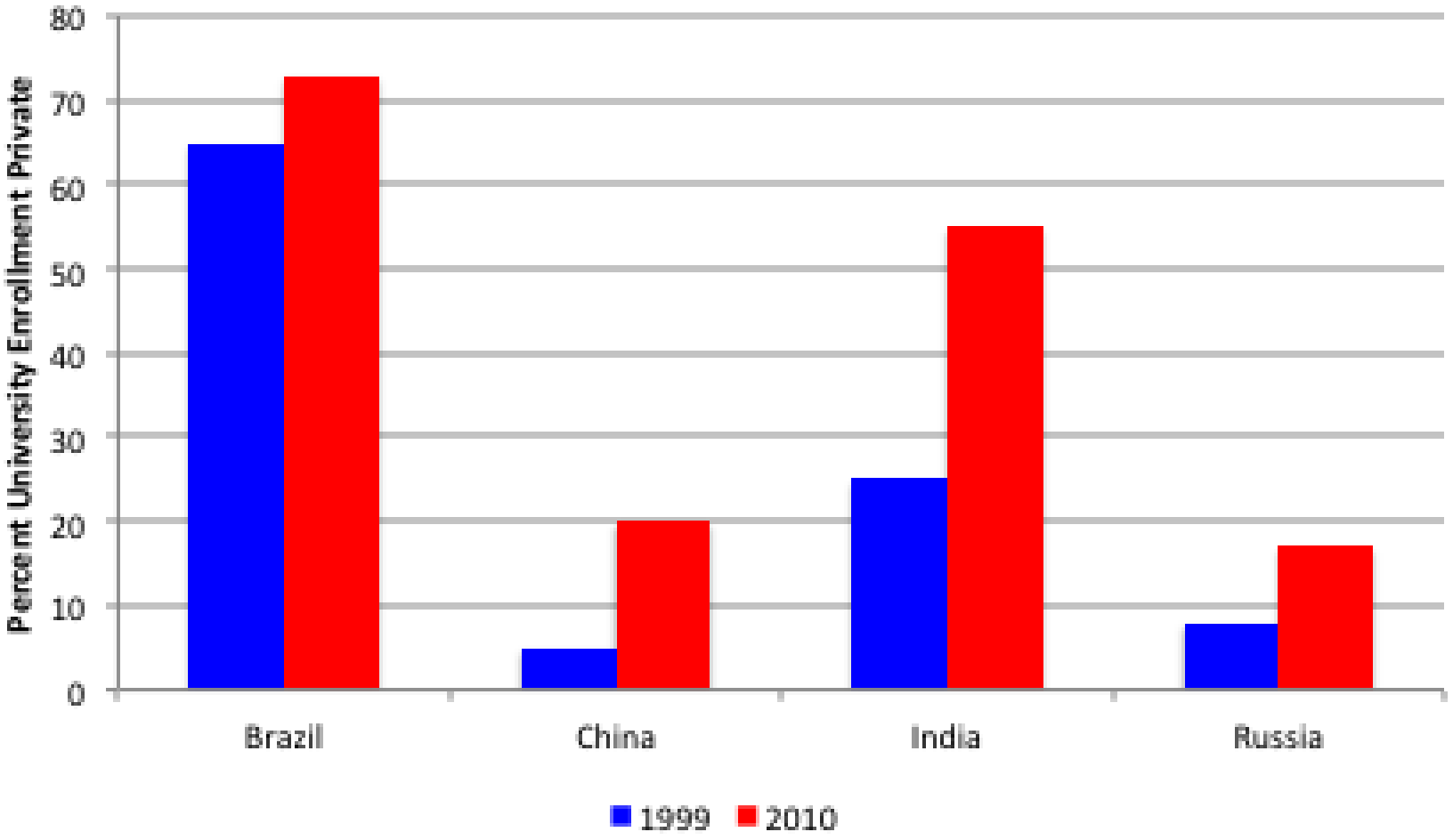
PRIVATE RATES OF RETURN TO COMPLETING UNIVERSITY STAYED HIGH OR INCREASED AS MORE GRADUATES ENTERED MARKET



FINDING II: BRIC GOVERNMENTS WERE ABLE TO SHIFT COSTS OF HE TO FAMILIES BECAUSE THE PRIVATE PAYOFFS ARE HIGH

1. One of the popular notions about trends in HE is that for ideological reasons, govts. are reconceptualizing HE from being a "public" to a "private" good because they are charging tuition at public universities and implicitly promoting the expansion of private universities.
2. We have come to a different conclusion. Because private RORs to HE, especially to engineering and business education, in the BRICs are high, even in Russia, govts can charge relatively high fees in public universities and allow privates to expand (China), charge fees to those who cannot get into "budgeted" places (Russia), charge fees (but quite low) in public universities but allow most expansion to be private in high demand fields (India), or allow most expansion in all fields to be private, with some subsides for poorer students (Brazil).
3. We call this "State opportunism," which may have an ideological component, but appears to be more a practical way to collect user taxes from those who can afford to pay.

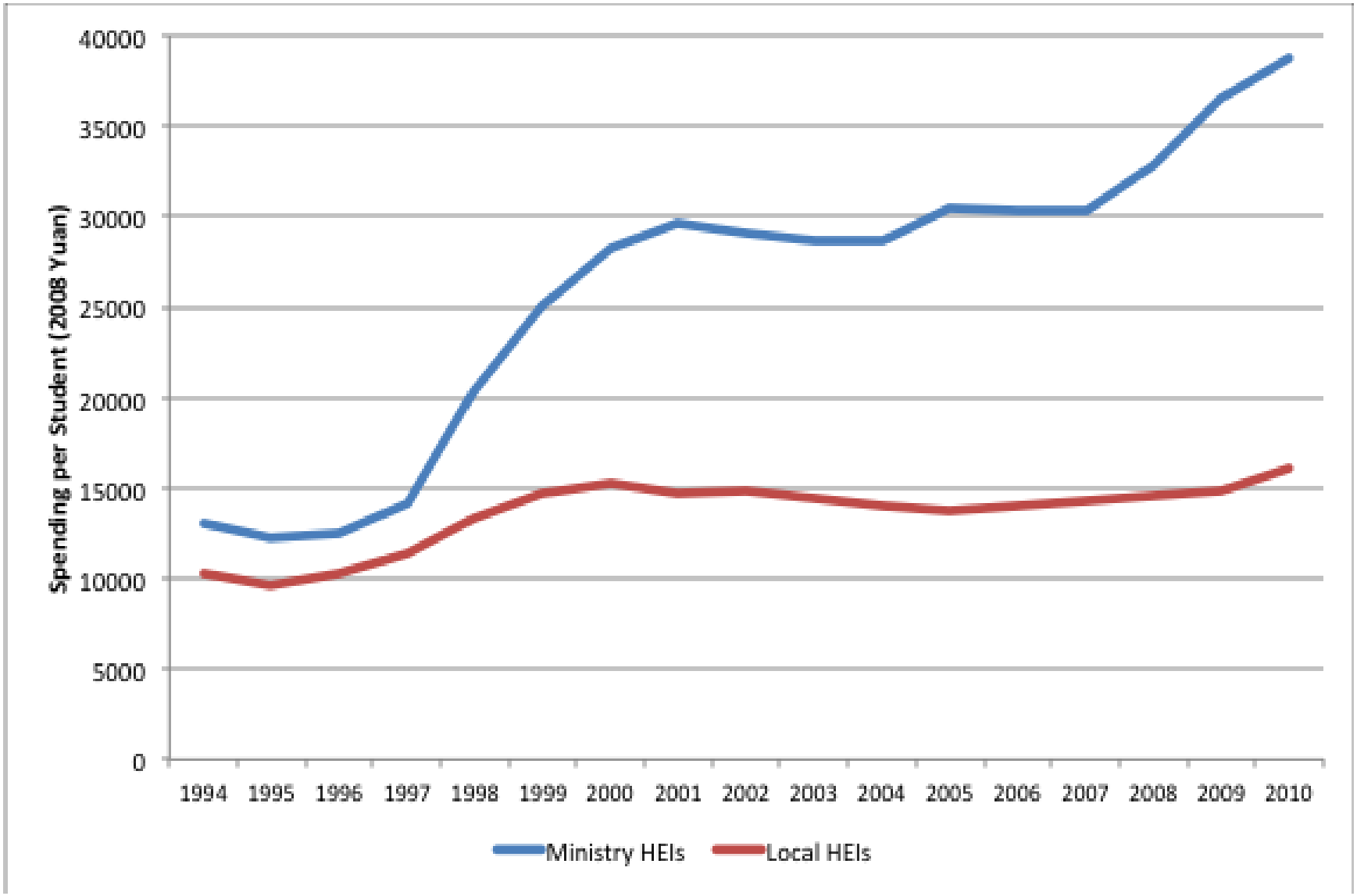
INCREASING PROPORTION OF HE STUDENTS IN PRIVATE INSTITUTIONS (INDIA APPROXIMATE)



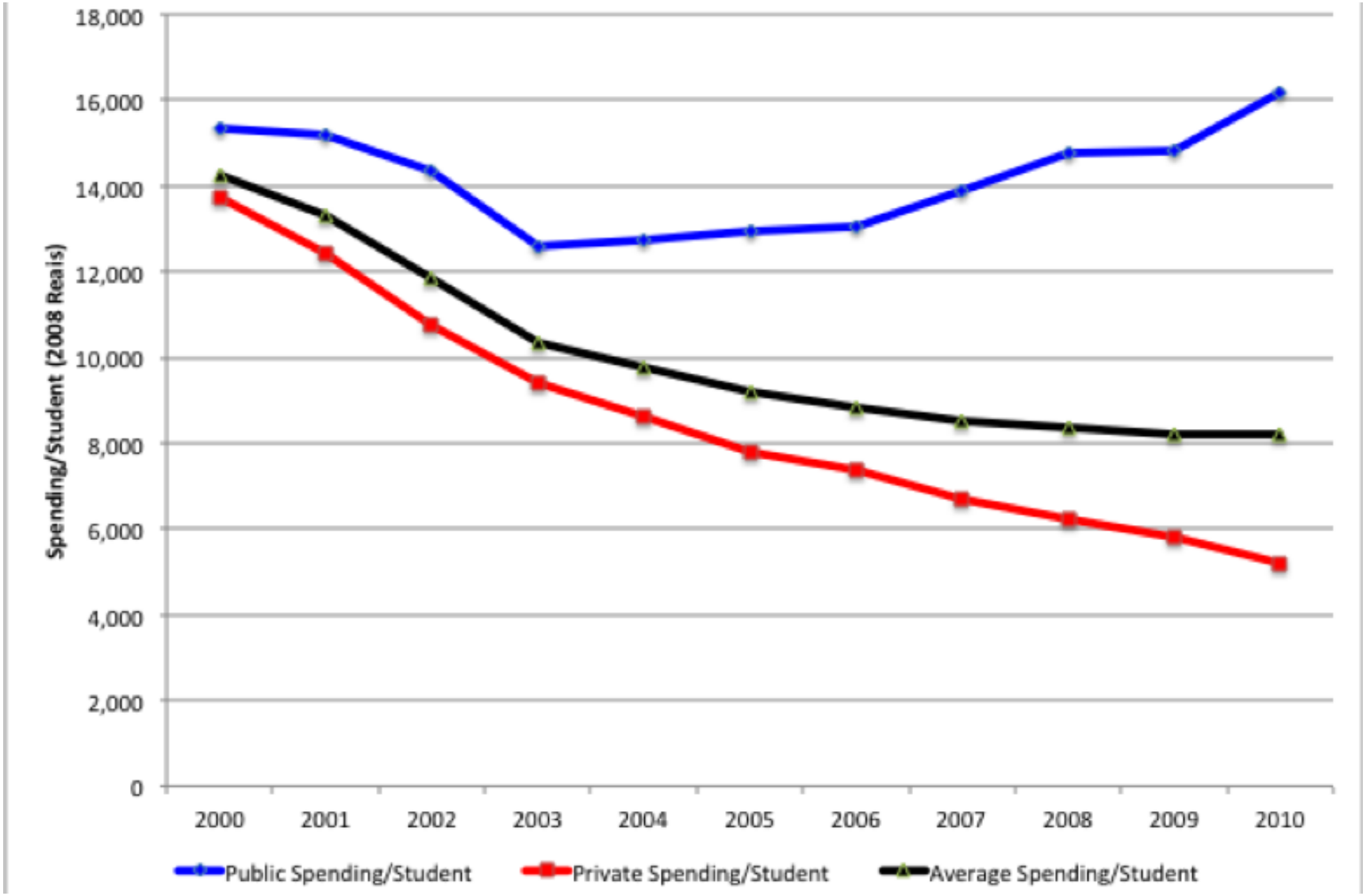
FINDING III: BRIC GOVERNMENTS ARE INCREASING THE FUNDING GAP BETWEEN ELITE AND MASS UNIVERSITIES

1. In three of the BRICs, the spending per student per HE student has declined as enrollment expanded. Only Russia has increased spending per student.
2. China and Russia are increasing the spending gap between elite universities (38 universities in Russia and 111 in China) and "mass" universities that absorb the vast majority of students. This is part of an effort to develop "world class" universities. By increasing spending on the elites, they hope to be able to compete in quality with universities in the US and Europe. But the cost is that the mass of students may be getting an increasingly "second class" education.
3. The spending per student in Brazil's private universities is declining over time, particularly in the mass of low quality ones. These are the universities most students attend.
4. In India, the elite IITs and IIMs cost much more per student than the private colleges or even the better public colleges, but there is no evidence that the gap is increasing. Nevertheless, average spending per student is declining.

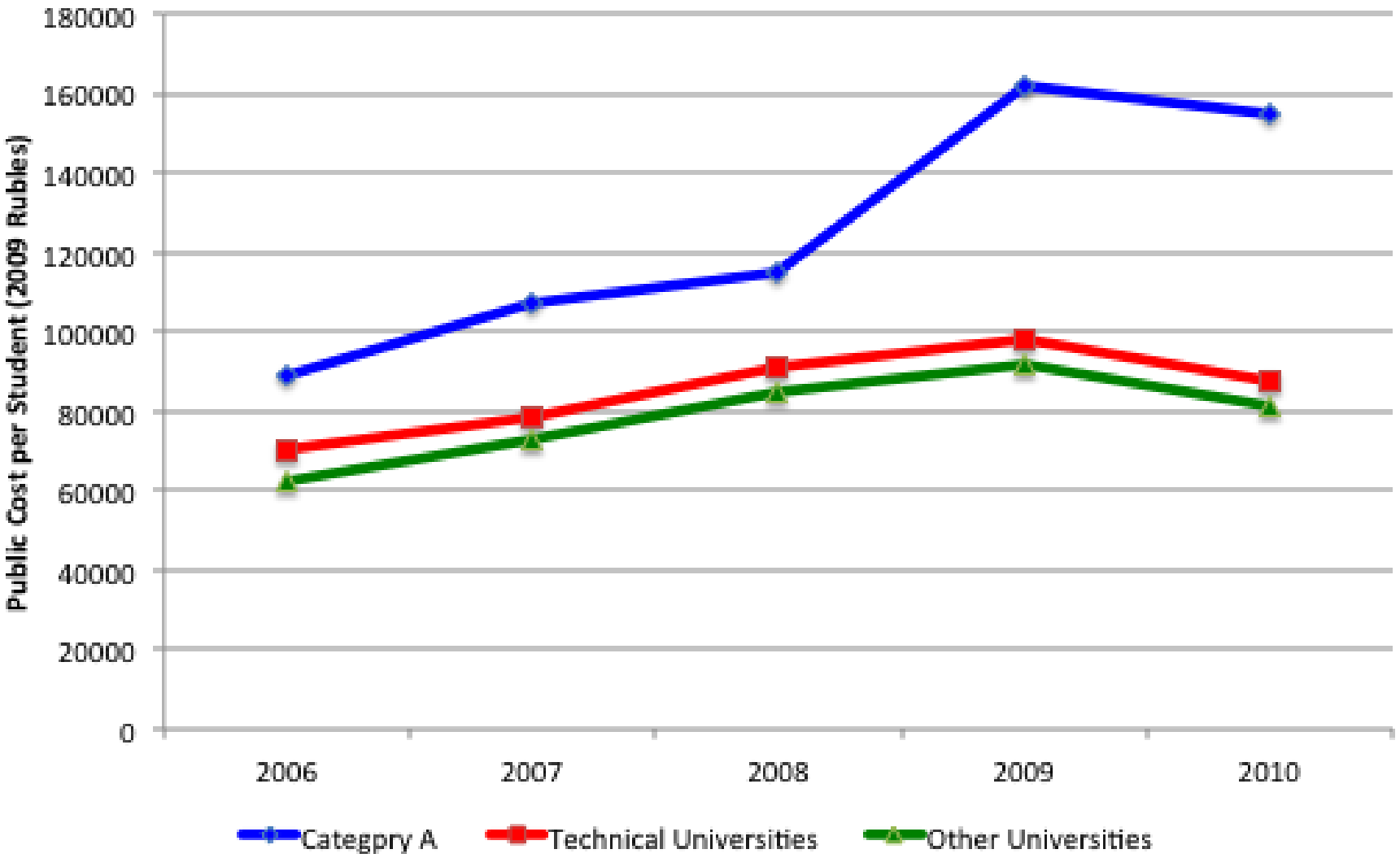
CHINA: SPENDING/HE STUDENT BY TYPE OF INSTITUTIONS, 1994-2010



INCREASING DIFFERENTIATION IN BRAZIL'S HIGHER EDUCATION



RUSSIA: PUBLIC SPENDING/STUDENT, BY TYPE OF INSTITUTION, 2006-2010



FINDING IV: POTENTIAL QUALITY OF ENGINEERING & CS EDUCATION VARIES IN BRICS

It is difficult to measure the quality of higher education in any country, given the limited data we have on higher education outcomes.

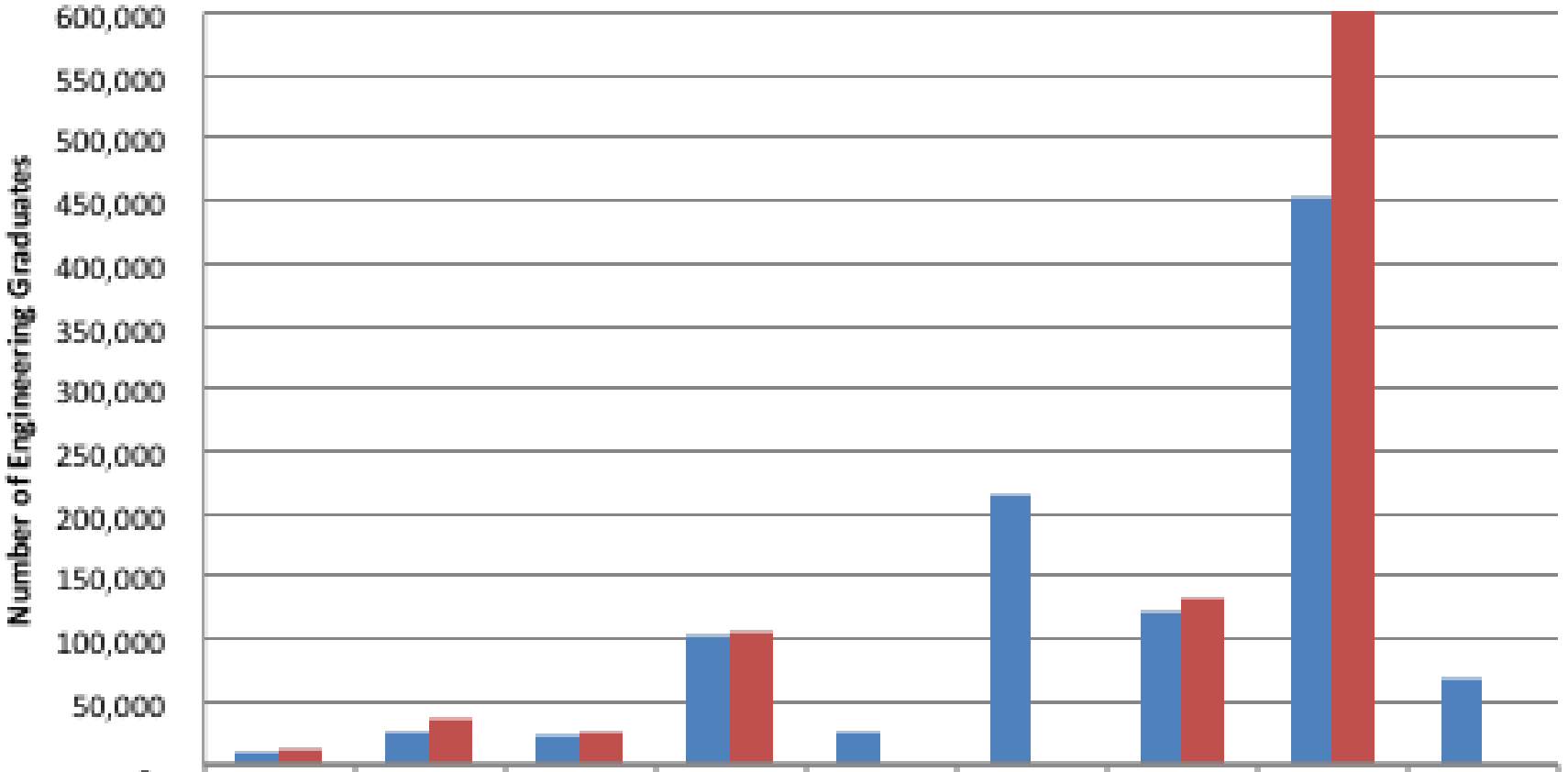
Quality is a function of how well prepared incoming students are and the value added by higher education institutions.

Proxies for quality of inputs are the technical PhDs available to the system and R&D spending per student.

We conclude that, the average quality of entering students is probably lowest in India, followed by Brazil, and that the value added of most Indian and Brazilian(private) colleges and universities is probably not high.

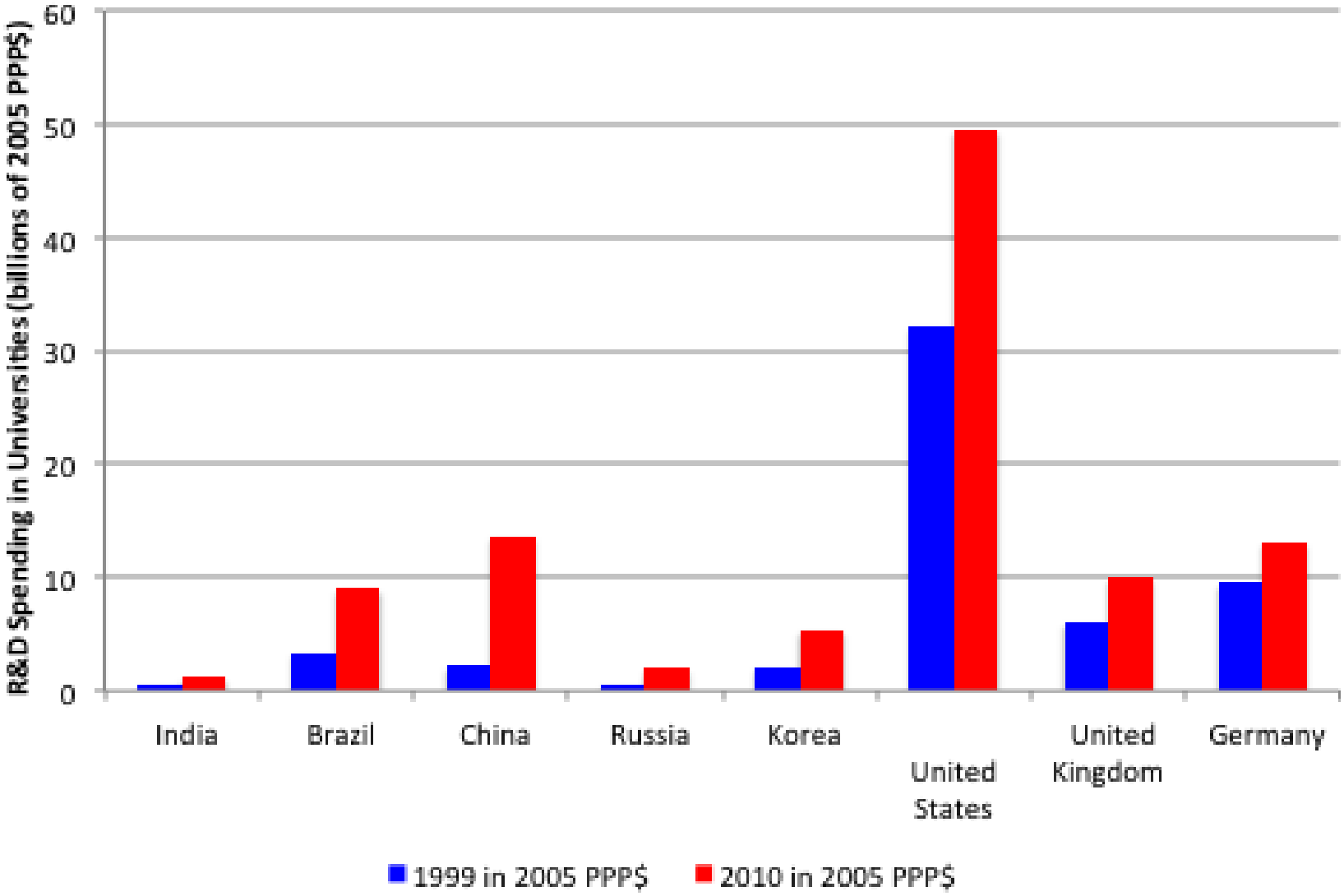
Entering students in China and Russia are well prepared in math, but the quality of most Chinese and many Russian university engineering programs is dubious.

ENGINEERING STUDENTS ATTENDING ELITE HE RELATIVELY SMALL BUT BIG ABSOLUTELY

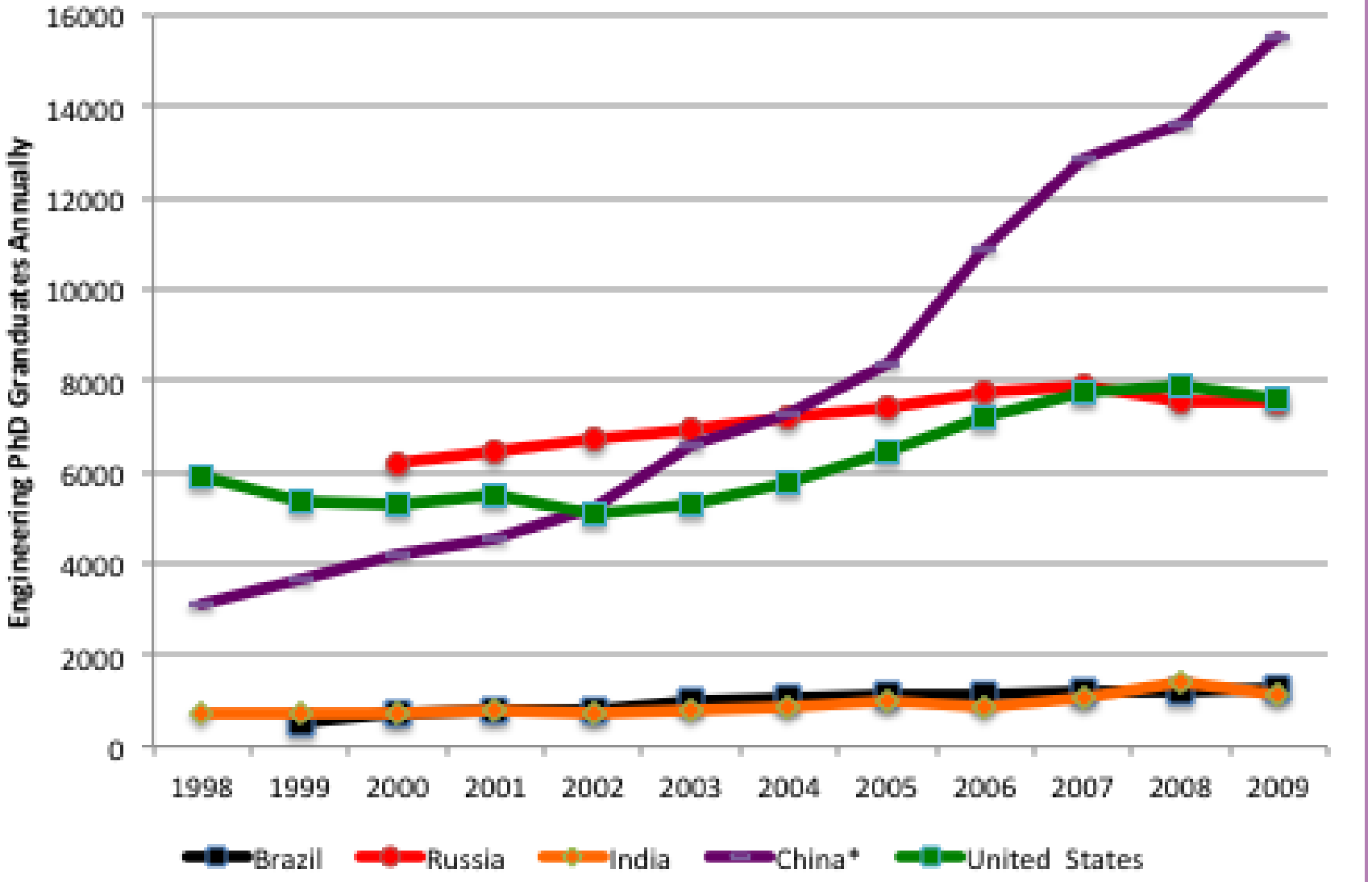


	elite	non-elite	elite	non-elite	elite	non-elite	elite	non-elite	total
	Brazil		Russia		India		China (4-yr only)		US
2006	10,200	24,800	24,000	102,300	25,000	215,000	121,459	454,175	68,227
2009	12,700	35,700	25,500	106,500			132,872	630,763	

RESEARCH FUNDING FOR UNIVERSITIES IS INCREASING, BUT STILL LOW IN ALL THE BRICS, HIGHEST IN BRAZIL (2005 PPP $)



ANNUAL ENGINEERING PHDS, BY COUNTRY, 1999-2009



FINDING V: UNCLEAR IF HE EXPANSION IS CONTRIBUTING TO MORE EQUAL INCOME DISTRIBUTION

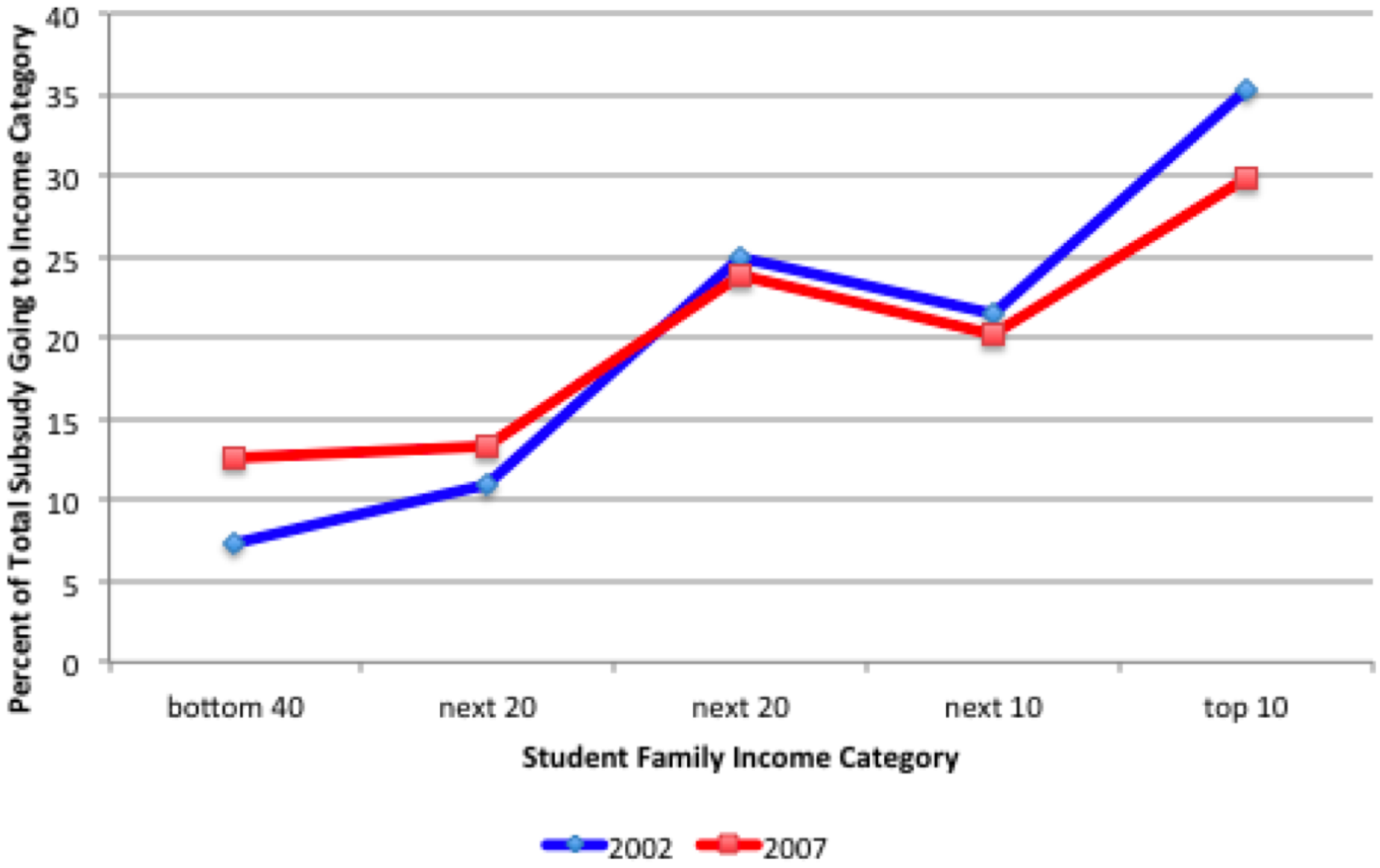
Rising relative rates of return to university completers may more than offset increasing proportion of completers in the labor force.

Increased differentiation of public spending among HE elite and non-elite institutons also probably contributes to greater income inequality even as HE expands.

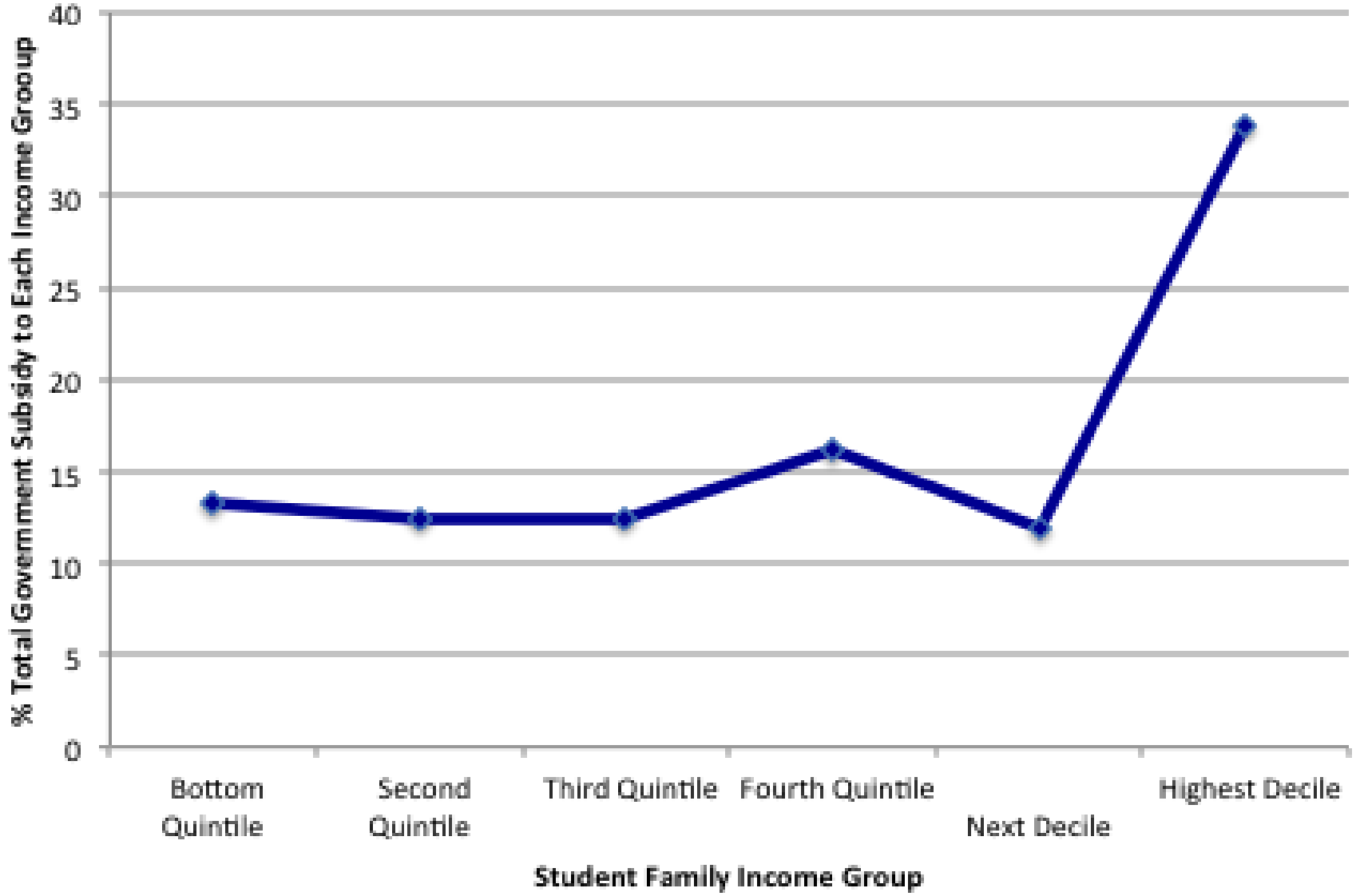
We find, in the two countries where we could measure it, that the distribution of public funding in HE is very unequally distributed, more in Brazil than in Russia, but even in the latter, where a very high fraction of college-age youth attend HE.

Nevertheless, both India and Brazil, the more politically "democratic" BRICs, have moved toward strong affirmative action legislation in HE acccess.

UNEQUAL DISTRIBUTION OF PUBLIC SPENDING IN HIGHER EDUCATION IN BRAZIL



UNEQUAL DISTRIBUTION OF PUBLIC SPENDING ON HE IN RUSSIA, TOO



SUMMING UP—THE POSITIVE

The BRIC countries produce massive numbers of university graduates, and massive numbers of engineering and CS graduates.

Except for Russia, this number should increase rapidly in the coming years as higher percentages of the age cohort enter university in response to high rates of return to private investment in higher education, especially in engineering education.

There seems no indication that in the next ten years, these rates will fall significantly.

Students entering elite universities and engineering and CS education in the BRICs are probably as well prepared mathematically as in the developed countries, in part because such a reduced percentage of the age group (except in Russia) applies to such universities.

Because there are so many students attending such elite institutions, particularly in China those graduates could be highly competitive with US graduates in the coming years.

So far, it appears that HE expansion probably has contributed to the legitimacy of BRIC governments.

SUMMING UP—POSSIBLE CONTRADICTIONS

Brazil and China are reducing spending per HE student, and increasing the resource gap between mass and elite universities. Russia was increasing spending per student but increasing the gap. India is reducing spending per student but not increasing the gap—nevertheless, India spends very little per student in non-elites.

R&D spending per student in universities is very low except in Brazil.

The number of PhDs teaching in universities is fairly high in China—production of PhDs is great in technical fields—but this is not the case in India, and is not the case in the mass universities in Brazil.

The quality of teaching and the opportunity to learn from faculty who do research, or participate in research, is limited in all BRICs for the vast majority of engineering students.

Hence, the quality of 80% + of the engineering graduates is much lower than in the developed countries, and this may impact future domestic development.